

CLAIMS

1. Device (1) for removing mercury from mercury-containing residues (6), comprising a gastight screw conveyor (2) provided with an inlet (5) for mercury-containing residues (6), first heating means for heating
5 admitted mercury-containing residues and causing mercury to evaporate, an outlet conduit (7) for mercury vapour-containing gas and an outlet channel (10) for mercury-free residues, characterized in that the device (1) is provided with pump means (16) for applying an
10 underpressure in the screw conveyor (2) and discharging mercury vapour-containing gas therefrom, and with a distillation column (17) provided with cooling means (18, 19) to cause condensation of mercury vapour from the mercury vapour-containing gas discharged with the
15 pump means (16).

2. Device (1) as claimed in claim 1, characterized in that the inlet comprises an inlet funnel (5) provided with a gastight shut-off valve (9).

3. Device (1) as claimed in claims 1-2,
20 characterized in that the first heating means are adapted to heat the admitted residues to a temperature higher than 350°C.

4. Device (1) as claimed in claim 3, characterized in that the first heating means are adapted to heat the
25 admitted residues to a temperature higher than 550°C.

5. Device (1) as claimed in any of the claims 1-4, characterized in that the outlet channel (10) for mercury-free residues comprises an outlet sluice (14) provided with two gastight shut-off valves (12,13).

30 6. Device (1) as claimed in any of the claims 1-5, characterized in that the outlet conduit (7) comprises a dust filter (8).

7. Device (1) as claimed in any of the claims 1-6, characterized in that it is provided with air inlet

means (21) and control means for admitting air for the purpose of receiving therein and discharging mercury vapour.

8. Device (1) as claimed in any of the claims 1-7,
5 characterized in that the outlet conduit (7) is provided with second heating means for heating the mercury vapour-containing gas.

9. Device (1) as claimed in any of the claims 1-8,
10 characterized in that the pump means (16) are provided with third heating means for heating the mercury vapour-containing gas.

10. Device (1) as claimed in claims 8 and 9,
15 characterized in that the second and third heating means are adapted to maintain the temperature of the mercury vapour-containing gas at a value of at least 180°C.

11. Device (1) as claimed in any of the claims 1-10, characterized in that the cooling means (19) are adapted to cool the mercury vapour-containing gas to a temperature at least lower than minus 30°C.

20 12. Method for removing mercury from mercury-containing residues (6) with a device (1) as claimed in claim 1, comprising the steps of

(i) admitting mercury-containing residues (6) into a gastight screw conveyor (2),

25 (ii) heating the admitted mercury-containing residues and causing mercury to evaporate,

(iii) applying an underpressure in the screw conveyor (2) and discharging mercury vapour-containing gas therefrom,

30 (iv) causing mercury vapour to condense from the mercury vapour-containing gas discharged with the pump means (16), and

(v) collecting mercury in condensed state.

13. Method as claimed in claim 11, characterized in
35 that the residues are heated in step (ii) to a temperature of about 560°C.

14. Method as claimed in any of the claims 11-13,
characterized in that the underpressure to be applied in
step (iii) amounts to about 750 mBar.

15. Method as claimed in any of the claims 11-14,
5 characterized in that the mercury vapour-containing gas
to be discharged in step (iii) is guided into a heated
conduit (7) in which this gas is held at a temperature
of at least 180°C.

16. Method as claimed in any of the claims 11-15,
10 characterized in that the mercury vapour-containing gas
to be discharged in step (iv) is guided into a
distillation column (17) which is at least partially
cooled to a temperature of about minus 38°C.

17. Method as claimed in any of the claims 11-16,
15 characterized in that while maintaining the
underpressure to be applied in step (iii) air is
admitted into the device (1) in order to entrain mercury
vapour.